

Panel Member: Dr Kimberly Ennico

Banner Year for Solar System Exploration – SPACE 2015

New Horizons successful completes the historic first flyby of Pluto and its moons.

On July 14, 2015, after a 9.5 year trek across the solar system, NASA's New Horizons spacecraft flew by the dwarf planet Pluto and its system of moons, taking imagery, spectra and in-situ particle data. Data from New Horizons will address numerous outstanding questions on the geology and composition of Pluto and Charon, plus measurements of Pluto's atmosphere, and provide revised understanding of the formation and evolution of Pluto and Charon and its smaller moons. This data set is an invaluable glimpse into the outer Third Zone of the solar system. Data from the intense July 14<sup>th</sup> fly-by sequence will be downlinked to Earth over a period of 16 months, the duration set by the large data set (over 60 GBits) and the limited transmitted bandwidth rates (~1-2 kbps) and sharing the three 70 m DSN assets with our missions. The small fraction (~1%) of data downlinked during the early phase of the flyby has already revealed Pluto and Charon to be very different worlds, with increasing and dynamic complexity.

Dr. Kimberly Ennico is a research astrophysicist at NASA's Ames Research Center. She is a Co-investigator and Deputy Project Scientist on NASA's New Horizons Pluto Fly-by Mission, leading the calibration activities and doing compositional mapping of Pluto and Charon with color imagery and spectroscopy. Dr. Ennico is also an Instrument Scientist for the Near-Infrared Volatile Spectrometer System instrument in the Regolith & Environment Science and Oxygen & Lunar Volatile Extraction (RESOLVE) lunar payload suite and Instrument Scientist for the Mid-Infrared Spectroscopy Mode for the Stratospheric Observatory for Infrared Astronomy FORCAST Instrument. She is also a Principal Investigator developing innovative telescope designs using small satellites and is actively working to mature low-cost, quick turn-around suborbital and balloon payloads that deliver focused science measurements and promote broader hands-on experience. Her prior space mission experience includes being Instrument Scientist on the Spitzer Space Telescope Far-Infrared camera MIPS, specialist in detector radiation testing for the James Webb Space Telescope, and Payload Scientist and Integration & Test Lead for the Lunar Crater Observation and Sensing Satellite (LCROSS), where she successfully demonstrated a cost-effective Class D test program of modified COTS hardware.